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10/699,024	10/31/2003	Jagir Razak Jainul Abdeen Hussan	JP920030152US1	2138

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EXAMINER	
WHALEY, PABLO S	
ART UNIT	**PAPER NUMBER**
1631	

NOTIFICATION DATE	DELIVERY MODE
07/09/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

a@aengland.com

Office Action Summary	Application No.	Applicant(s)	
	10/699,024	ABDEEN HUSSAN, JAGIR RAZAK JAINUL	
	Examiner	Art Unit	
	PABLO WHALEY	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims Under Examination

Claims 1-11 are pending.
Claims 12-13 are cancelled.

Objections

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code on page 13. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Withdrawn Rejections

The rejection of claims 1-13 under 35 U.S.C. 112, second paragraph, is withdrawn in view of applicant's amendments to claims 1-9 and 11 in the amendment filed 03/12/2008.

The rejection of claims 1-13 under 35 U.S.C. 101 for non-statutory subject matter is withdrawn in view of applicant's amendment of claim 1, filed 03/12/2008, which now presents information to a user.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 2-11 are rejected under 35 U.S.C. 101 because these claims are drawn to non-statutory subject matter. These claims are again rejected for the following reasons.

Claim 1 is now statutory in view of applicant's amendment, filed 03/12/2008, which now presents information to a user. However, dependent claims 2-11 are drawn to "the method of claim 1 further comprising" additional method steps for associating data, storing data, segmenting data, and identifying data. Because claims 2-11 do not set forth any limitations that require that they are performed before the final step recited in claim 1, the method steps of claim 2-11 could occur after the step for "presenting" data to a user in claim 1.

For a process to be statutory, it must provide: (1) a practical application by physical transformation (i.e. reduction of an article to a different state or thing), or (2) a practical application that produces a concrete, tangible, and useful result [State Street Bank & Trust Co. v. Signature Financial Group Inc. CAFC 47 USPQ2d 1596 (1998)], [AT&T Corp. v. Excel Communications Inc. (CAFC 50 USPQ2d 1447 (1999)]. As noted in State Street Bank & Trust Co. v. Signature Financial Group Inc. CAFC 47 USPQ2d 1596 (1998), the statutory category of the claimed subject matter is not relevant to a determination of whether the claimed subject matter produces a useful, concrete, and tangible result. The question of whether a claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to a process, machine, manufacture, or composition of matter--but rather on the essential characteristics of the subject matter, in particular, its practical utility.

In the instant case, claims 2-11 do not result in a physical transformation of matter. Where a claimed method does not result in a physical transformation of matter, it may be statutory where it recites a result that is concrete (i.e. reproducible), tangible (i.e. communicated to a user), and useful result (i.e. a specific and substantial). However, claims 2-11 result in additional method steps for associating data, storing data, segmenting data, and identifying data. These are not tangible result because associating data, storing data, segmenting data, and identifying data does not communicate a result in a user readable format. Therefore the claimed method does not recite a practical application of a 35 U.S.C. 101 Judicial exception and is not statutory.

This rejection could be overcome by amendment of the claims 2-11 to clarify their order within the method of claim 1 or amend the claims such that a result of the process is outputted to a display, or to a user, or in a graphical format, or in a user readable format, or by including a result that is a physical transformation. The applicants are cautioned against introduction of new matter in an amendment. For an updated discussion of statutory considerations with regard to non-functional descriptive material and computer-related inventions, see the Guidelines for Patent Eligible Subject Matter in the MPEP 2106, Section IV.

Response to Arguments

Applicant's arguments, filed 3/12/2008, that claim 1 now recites a tangible result are persuasive in view of the amendment filed 3/12/2008. Claim 1 now presents information to a user. However, dependent claims 2-11 are drawn to "the method of claim 1 further comprising" additional method steps for associating data, storing data, segmenting data, and identifying data. Because claims 2-11 do not set forth any limitations that require that they are performed before the final step recited in claim 1, the method steps of claim 2-11 could occur after the step for "presenting" data to a user in claim 1. Therefore the rejection of claims 2-11 is maintained because these claims lack a tangible result, as set forth above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

> This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor et al. (Computer and Chemistry, 1999, Vol. 23, p.365-385), in view of Kalantery (US 5,832,272; Issued: Nov. 3, 1998), and in view of Huysmans et al. (Proteins: Structure, Function, and Genetics, 1991, Vol. 11, p. 59-76).

This rejection is necessitated by amendment.

Claims 3 and 6 now recite storing replet information in a table using a pointer so that equivalent sequences occupy single storage space.

Taylor teaches a method and program for presenting sequence data using a computer system. In particular, Taylor shows a search and alignment algorithm [Fig. 3], wherein patterns in sequence data are identified in databank sequences via alignment and represented using codes [Table 1], which equates to replets. Taylor shows amino acid match-set data [Fig. 4] representing position-match records of sequence data. The algorithm includes a filter to remove similarities in data and peptide [Fig. 3]. Taylor shows generating and plotting (i.e. presenting) sequence data in the form of the sequence codes and match-set data [Fig. 5], wherein the sequence data has been reduced by the removal of pairs of homologues with more than 70% identity [Fig. 5, Discussion]. Therefore Taylor teaches generating certain data wherein a computer system has removed replets. Taylor teaches associating data representing sequence data using trees [See Fig. 1 and Fig. 2], wherein the tree distinguishes groupings of sub-sets of data (i.e. data variation portions). Taylor teaches segmenting data to generate scores [p.378, Col. 2, ¶1]. Taylor uses the psi-BLAST algorithm for assembling multiple ordered segments and constructing sequence profiles to be used as new probe in repeated cycles of the entire process [p.378, Section 5].

Taylor does not specifically teach presenting a certain data sequence to a user "wherein the position match parameters for each initial and additional replet enable selecting between reconstructing the sequence data responsive to i) the initial replets without the at least one additional replet and ii) the initial replets with the at least one additional replet." However, Taylor also uses position match parameters to select optimal matches [Fig. 3 and Section 5.1.1] based on multiple probes and a single search probe [Table 8], making obvious the limitation of claim 1 (lines 12-16) since Taylor shows position match parameters used select sequence data obtained from initial search sequences or multiple search sequences.

Taylor does not specifically teach storing information in a table using a "pointer", as in claims 3 and 6.

Huysmans teaches a relational database for storing sequence and position identifier data [Abstract]. In particular, Huysmans teaches storing sequence position identifiers, serial numbers, and related sequence information in a database using index points [Table I, Table II, and p.65, Col. 1, and Col. 67, Col. 1, ¶3].

Kalantery teaches a method for searching databases based on parallel-processing [Col. 1, lines 1-20]. In particular, Kalantery teaches a program that stores data items as pointers [Col. 9, lines 10-16, Fig. 5, 14, 15] in a particular memory location [Col. 11, lines 45-65, and Fig. 10]. Furthermore, the skeleton structure removes repetitive data in the process of writing data to memory [Col. 12, lines 1-10] to keep equivalent sequences in a single storage space.

Therefore, it would have been obvious to someone of ordinary skill in the art at the time of the instant invention to practice the method of Taylor in combination with the data storing methods taught by Huysmans or by Kalantery, since Taylor shows storing sequence information in database using look-up tables [Fig. 3] and suggests using search methods that save time [p.384, Col. 1]. The motivation would have been to improve searches using properly indexes that are sets of pointers, as suggested by Kalantery, or to reduce searching times using parallel-processing, as suggested by Kalantery[Col. 1, lines 1-20].

Response to Arguments

Applicant's arguments filed 3/12/2008 have been fully considered but are not persuasive for the following reasons.

Applicants argue that the combination of references does not teach "identifying initial replets and at least one additional replete." In response, Taylor teaches an iterated search algorithm [Fig. 3] for

identifying databank sequences [Table 1], and additional sequences from expanded match-sets [Fig. 4]. Therefore Taylor teaches initial and at least one additional replete.

Applicants argue that the combination of references does not teach "storing…at least two position-match parameters for recording" position data of the replete within the sequence, as in claim 1. In response, Taylor teaches storing data representing the alignment of amino acids for at least two positions [Fig. 4 and Section 4.1.2], which shows "storing…at least two position-match parameters for recording" position data of the replete.

Applicants argue that the combination of references does not teach generating a data sequence "by removing initial replets from the sequence data." Taylor shows generating and plotting hemoglobin sequence data in the form of the sequence codes and match-set data [Fig. 5], wherein the sequence data has been reduced by the removal of pairs of homologues with more than 70% identity [Fig. 5, Discussion]. Therefore Taylor teaches generating certain data wherein a computer system has removed replets.

Applicants argue that the combination of references does not teach "presenting data to a user" wherein position match parameters enable selecting between reconstructing the sequence data responsive to i) initial replets with and without an additional replet. Taylor shows plotting (i.e. presenting) sequence data in the form of the sequence codes and match-set data [Fig. 5]. Taylor also uses position match parameters to select optimal sequences [Fig. 3 and Section 5.1.1] based on multiple probes and a single search probe [Table 8], which shows position match parameters used select sequence data obtained from initial search sequences or multiple search sequences.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is

reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pablo Whaley whose telephone number is (571)272-4425. The examiner can normally be reached on 9:30am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran can be reached at 571-272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Pablo S. Whaley/

Patent Examiner

Art Unit 1631

/John S. Brusca/
Primary Examiner, Art Unit 1631